SBC85610

Socket 370 LPX Board

User's Manual

Disclaimers

The information in this manual has been carefully checked and is believed to be accurate. AXIOMTEK Co., Ltd. assumes no responsibility for any infringements of patents or other rights of third parties which may result from its use.

AXIOMTEK assumes no responsibility for any inaccuracies that may be contained in this document. AXIOMTEK makes no commitment to update or to keep current the information contained in this manual.

AXIOMTEK reserves the right to make improvements to this document and/or product at any time and without notice.

No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of AXIOMTEK Co., Ltd.

©Copyright 2003 by AXIOMTEK Co., Ltd.
All rights reserved.
September 2003, Version A2
Printed in Taiwan

ESD Precautions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

Trademarks Acknowledgments

AXIOMTEK is a trademark of AXIOMTEK Co., Ltd.

IBM is a registered trademark of International Business Machines Corporation.

MS-DOS, and Windows 95/98/NT/2000 are trademarks of Microsoft Corporation.

Award is a trademark of Award Software, Inc.

IBM, PC/AT, PS/2, VGA are trademarks of International Business Machines Corporation.

Intel and Celeron, Pentium III are trademarks of Intel Corporation.

Other brand names and trademarks are the properties and registered brands of their respective owners.

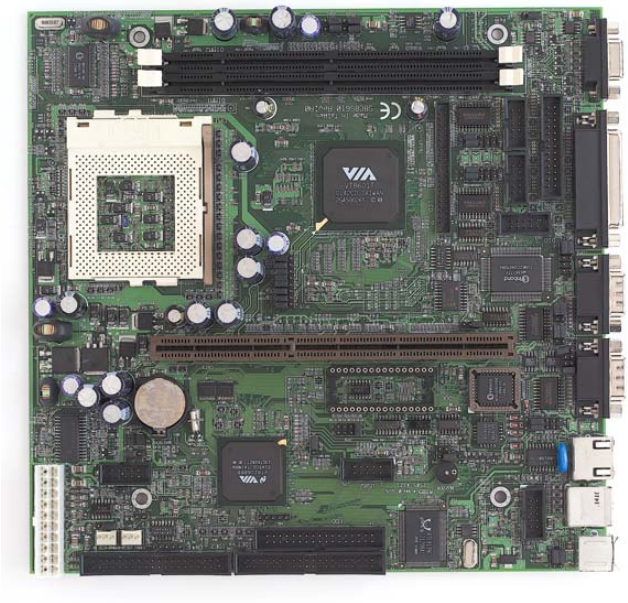
This page does not contain any information.

Table of Contents

Chapter 1 Introduction....1
1.1 Specifications....2
1.2 Utilities Supported....3
Chapter 2 Jumpers and Connectors....5
2.1 Board Dimensions....5
2.2 Board Layout....6
2.3 Jumper Settings....7
2.3.1 Flat Panel Connector (LCD) Voltage Selection: JP308
2.3.2 Internal Buzzer / External Speaker connector: JP6 8
2.3.3 Watch Dog Timer Timeout Trigger Seclection: JP13 ...8
2.3.4 Dick On Chip Address Selection: JP9....8
2.3.5 PS/2 Mouse or IRQ12 Selection: JP8 9
2.3.6 CMOS Clear Jumper: JP7 9
2.3.7 Serial Ports Signal/Voltage Selection: JP10, JP22, JP24, JP25....9
2.3.8 COM2 RS232/422/485 Settings: JP11, JP12, JP14 10
2.3.9 North Bridge CRT Signal 1-2/2-3 Switch: JP15, JP16, JP17, JP18, JP19 10
2.3.10 Power Supply Type Selection: JP2 10
2.4 Connectors....11
Chapter 3 Installation....13
3.1 System Memory 13
3.2 Completing Installation 13
Chapter 4 Hardware Description 15
4.1 Microprocessors....15
4.2 BIOS....15
4.3 DMA channel assignments 15
4.4 Interrupt Controller....16
4.5 I/O Port Address Map 17
4.6 IDE Interface Connector....18
4.7 VGA Features 18
4.7.1 VGA Connector: CN16 18
4.7.2 Flat Panel Connector Pin Description 19
4.8 Ethernet Connector 20
4.9 Floppy Disk Controller 21

4.10 Parallel Port Interface 21
4.11 Serial Port Interface 23
4.12 Digital I/Os 24
4.12.1 Digital I/O Software Programming 25
4.13 Keyboard and PS/2 Mouse Connectors 26
4.14 USB Connector 26
4.15 HDD LED and Power LED Connector 27
4.16 Hardware Reset Connector 27
4.17 AC97 Audio Interface Connector 27
4.18 Power Button Connector 28
4.19 IrDA Connector 28
4.20 Temperature Sensor 28
4.21 CPU and System Fan Connector 29
Chapter 5 Display Drivers 31
5.1 Introduction 31
5.2 Features 31
Chapter 6 Ethernet 33
6.1 Introduction 33
6.2 Features 33
6.3 Drivers Supported 33
Chapter 7 Award BIOS Utility 35
7.1 BIOS Introduction 35
7.2 BIOS Setup 35
7.3 Standard CMOS Features 37
7.4 Advanced BIOS Features 41
7.5 Advanced Chipset Features 43
7.6 Integrated Peripherals 45
7.7 Power Management Setup 49
7.8 PnP/PCI Configurations 51
7.9 PC Health Status 53
7.10 Frequency/Voltage Control 54
7.11 Load Fail Safe Defaults 55
7.12 Load Optimized Defaults 56
7.13 Set Supervisor / User Password 57
7.14 Save & Exit Setup 58
7.15 Exit Without Saving 59
Appendix A Watchdog Timer 61

Chapter 1
Introduction



The **SBC85610** POS board is an industrial grade CPU board incorporating VIA VT8601T chipset and the VT82C686B with built-in AGP2x VGA controller. The **SBC85610** can adapt a wide variety of Celeron and Pentium III microprocessors by jumperless configuring. To simplify system integration, it packs embedded provisions such as super I/Os, digital I/Os, XVGA, LCD, Ethernet, solid state disk, all on a single board. Unique embedded features such as 4 RS-232C serial ports with +5V/12V power capability and digital I/Os for UPS and simple automation control are exclusive design features that allow adoption of a extensive array of PC peripherals.Its 4-layer structure reduces signal noise and built-in power management feature. These advanced concepts along with the PCI Local Bus architecture bring outstanding performance to Windows-based applications.

1.1 Specifications

- **Chipset:** VT8601T & VT82C686B
- **Bus Clock:** 66/100/133 MHz
- **CPU:** Intel Celeron/Pentium III up to 1.4GHz
- **Processor Socket:** ZIF Socket 370
- **L2 Cache:** Integrated in CPU
- **BIOS:** 4Mbit PnP Flash BIOS
- **System Memory:**
  - 2 x 168-pin DIMM sockets
  - Maximum of 1GB SDRAM
  - Supports Non-ECC SDRAM only
  - Supports PC133 SDRAM module
- **IDE Interface:**
  - 2 chanels up to 4 devices
  - PIO Mode 0-4, DMA Mode 0-2 and Ultra DMA/33/66/100
- **FDD Interface:** Supports up to 2 drives
- **Serial Ports:**
  - Four 16550 UARTS ports with RS-232 with +5V/+12V power output
    - 3 x RS-232
    - 1XRS-232/422/485 Jumper Selectable
- **Parallel Ports:** Two parallel port with ECP/EPP/SPP supported
- **VGA Controller:**
  - AGP interface controller integrated in VIA VT8601T
  - Supports CRT and TFT displays
  - Extended Screen Resolutions up to 1600x1200
- **Onboard Ethernet:**
  - Onboard RTL8139C 10/100M Ethernet
  - Onboard RJ-45 connector
- **USB Interface:** 4 USB ports; USB Spec. Rev. 1.1a compliant

- **Digital I/O:** 4-channels TTL/DTL compatible input and output
- **Power Management:** ACPI
- **Watchdog Timer:**
  - Generates System Reset or Non-Maskable Interrupt (NMI) via jumper selection
  - 64 programmable time interval levels of 0.5~8/ 5~80/ 50~800/ 100~1600 seconds
- **SSD:** Supports M-Systems DiskOnChip® series
- **Expansion Slots:**
  - One EISA slot for ISA/PCI expansion
- **AC97:**
  - AC-link Interface box-header for external Codec Kit (AX93100)
- **Power Consumption**:
  - +5V @6.73A, +12V @410mA)
    (Pentium® III 933MHz, 256MB SDRAM)
- **Operating Temperature:** 0°C~60°C (32°F~140°F)
- **Operating Humidity:** 10%~95%; non-condensing
- **Dimensions:** 220(W) x 225(L) mm

NOTE: *Specifications are subject to change without notice.*

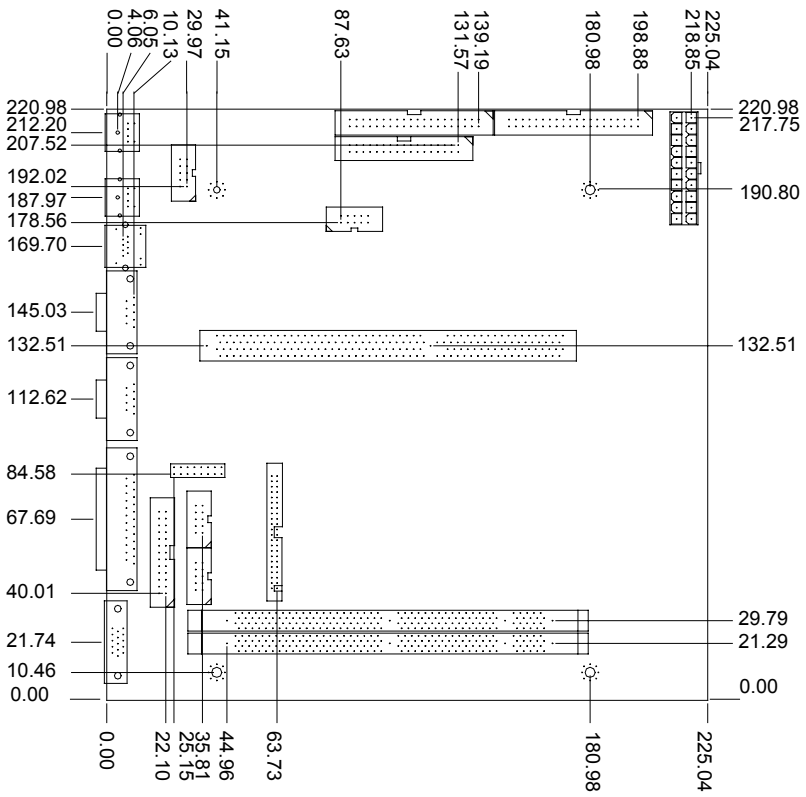
1.2 Utilities Supported

- VIA Chipset Driver
- Ethernet Utility and Drivers
- VGA Drivers

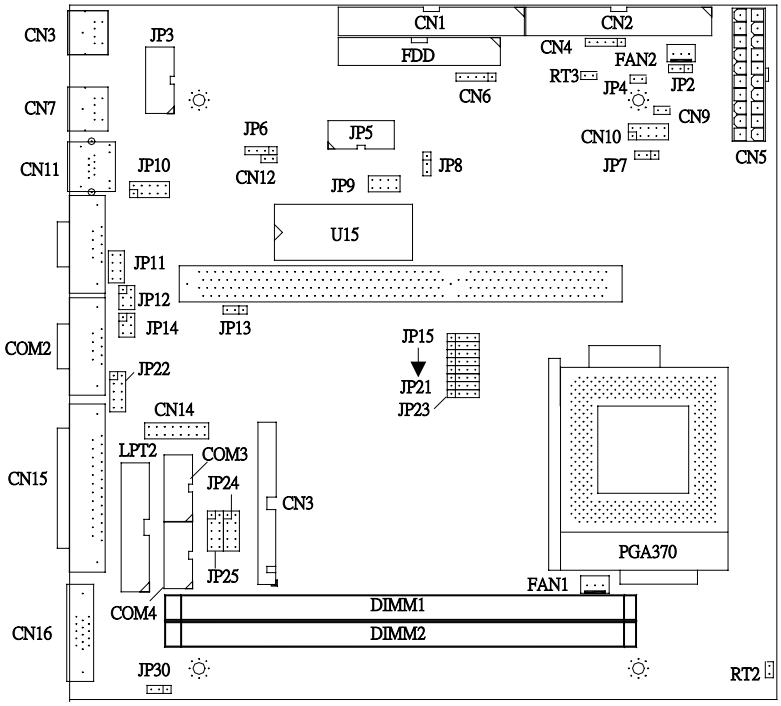
This page does not contain any information.

Chapter 2
Jumpers and Connectors

2.1 Board Dimensions



2.2 Board Layout



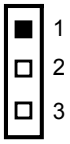
2.3 Jumper Settings

The SBC85610 is configured to match the needs of your application by proper jumper settings. The following tables show the correct jumper settings for the onboard devices.

Jumper	Default Setting	Jumper Setting
JP6	Internal Buzzer/External Speaker Selection Default: Internal Buzzer	Short 2-3
JP7	Normal Operation/Clear CMOS setting Default: Normal Operation	Short 1-2
JP8	PS/2 Mouse or IRQ12 selection Default: PS/2 Mouse	Short 2-3
JP10,JP22, JP24,JP25	Serial Port with Signal/+5V/+12V Power Selection Default: Signal	Short 7-9,8-10
JP13	WatchDog Timer Output Selection: Default: Disable	Open
JP15,JP16, JP17,JP18, JP19,JP20, JP21,JP23	North Bridge CRT Signal 1-2,3-4 Switch Riser Card CRT Signal 2-3 Default: 1-2,3-4	Short 1-2,3-4
JP30	Flat Panel Voltage Selection Default: 3.3V	Short 1-2
JP9	DOC Address Settings: Disable	Open
JP2	Power Supply Selection: AT power supply	Short 1-2
JP11	COM2 RS232/422/485 Selection: RS-232	Short 1-2
JP12	COM2 RS232/422/485 Selection: RS-232	Short 3-5,4-6
JP14	COM2 RS232/422/485 Selection: RS-232	Short 3-5,4-6
JP2	Power Supply Selection: ATX power supply	Short 2-3

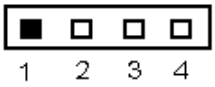
2.3.1 Flat Panel Connector (LCD) Voltage Selection: JP30

Option	Setting
5 V	Short 1-2
3.3 V	Short 2-3 (default)



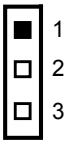
2.3.2 Internal Buzzer / External Speaker connector: JP6

Option	Setting
Internal Buzzer	Short 2-3 (default)
External Speaker	Pin#1: Speaker (+) Pin#4: Speaker (-)



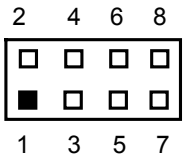
2.3.3 Watch Dog Timer Timeout Trigger Seclection: JP13

Option	Setting
Disable	Open (default)
NMI	Short 1-2
Reset	Short 2-3



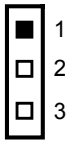
2.3.4 Dick On Chip Address Selection: JP9

Option	Setting
D0000H-D1FFFH	Short 1-2 (default)
D2000H-D3FFFH	Short 3-4
D4000H-D5FFFH	Short 5-6
D6000H-D7FFFH	Short 7-8



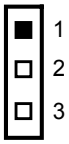
2.3.5 PS/2 Mouse or IRQ12 Selection: JP8

Option	Setting
PS/2 MOUSE	Short 2-3(default)
IRQ12	Short 1-2



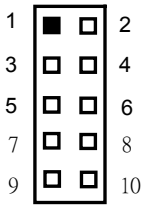
2.3.6 CMOS Clear Jumper: JP7

Option	Setting
Clear CMOS	Short 2-3
Normal	Short 1-2 (default)



2.3.7 Serial Ports Signal/Voltage Selection: JP10, JP22, JP24, JP25

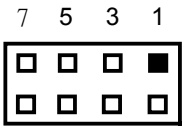
Jumper	Default Setting	Jumper Setting
JP10	COM1 pin1 & pin9 for COM Port signal	7-9, 8-10(default)
	COM1 pin1 & pin9 for +5V	3-5, 4-6
	COM1 pin1 & pin9 for +12V	1-3, 2-4
JP22	COM2 pin1 & pin9 for COM Port signal	7-9, 8-10(default)
	COM2 pin1 & pin9 for +5V	3-5, 4-6
	COM2 pin1 & pin9 for +12V	1-3, 2-4
JP24	COM3 pin1 & pin8 for COM Port signal	7-9, 8-10(default)
	COM3 pin1 & pin8 for +5V	3-5, 4-6
	COM3 pin1 & pin8 for +12V	1-3, 2-4
JP25	COM4 pin11 & pin18 for COM Port signal	7-9, 8-10(default)
	COM4 pin11 & pin18 for +5V	3-5, 4-6
	COM4 pin11 & pin18 for +12V	1-3, 2-4



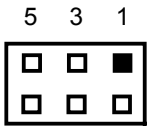
2.3.8 COM2 RS232/422/485 Settings: JP11, JP12, JP14

COM2	JP11	JP12	JP14
RS-232	Short 1-2	Short 3-5, 4-6	Short 3-5, 4-6(default)
RS-422	Short 3-4	Short 1-3, 2-4	Short 1-3, 2-4
RS-485	Short 5-6, 7-8	Short 1-3, 2-4	Short 1-3, 2-4

JP11

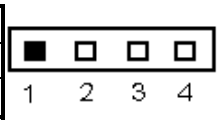


JP12 and JP14



2.3.9 North Bridge CRT Signal 1-2/2-3 Switch: JP15, JP16, JP17, JP18, JP19

Option	Setting
North Bridge CRT Signal 1-2	1-2, 3-4 (default)
NO North Bridge CRT Signal 2-3	2-3



2.3.10 Power Supply Type Selection: JP2

Options	Settings
AT P/S	Short 1-2
ATX P/S(default)	Short 2-3

2.4 Connectors

The connectors allow the CPU Board to connect with other parts of the system. Some problems encountered by your system may be a result from loose or improper connections. Ensure that all connectors are in place and firmly attached. The following table lists the function of each connector on the **SBC85610**.

Connectors	Label	Connectors	Label
Primary IDE Connector	CN1	4bit Digital I/O Connector	CN14
Secondary IDE Connector	CN2	PrinterPortConnector (LPT1)	CN15
Mouse Connector or mouse and Keyboard Connector	CN3	CRT Monitor Connector	CN16
HDD and Power LED Connector	CN4	COM1 Connector	COM1
IrDA Interface Connector	CN6	COM2 Connector	COM2
Keyboard Connector or kb & Mouse	CN7	COM3 Connector	COM3
4 Port USB Connector	JP3(CN8), JP5	COM4 Connector	COM4
Power Button Connector	CN9	Printer Port Connector (LPT2)	LPT2
AC97 Audio Interface Connector	CN10	LCD Connector	LCD
RJ-45 Connector	CN11	Disk On Chip Scoket	U15
Reset Connector	CN12	FDD Connector	FDD
EISA Slot	CN13	ATX Connector	CN5
FAN Power connector	FAN1	FAN Power connector	FAN2
System Temperature Sensor	RT3	CPU Temperature Sensor	RT2

This page does not contain any information.

Chapter 3
Installation

This chapter describes the hardware installation procedures on the **SBC85610** all-in-one POS board. The following is a list of typical peripherals required to build a minimum system:

- ATX Power supply
- IBM™ PS/2 Type keyboard
- Display monitor
- Floppy or hard disk with MS-DOS or Flash Disk emulator

3.1 System Memory

The **SBC85610** industrial CPU Board supports two 168-pin DIMM socket for a maximum total memory of 512Mx2 SDRAMs. The memory module can come in sizes of 16MB, 32MB, 64MB, 128MB, 256MB and 512MB SDRAMs.

NOTE: Use SDRAM modules with PC100 or PC133 specification when running 66/100MHz CPU bus speed. With 133MHz CPU bus speed, SDRAM modules with PC133 specification can be used. You have to install the Intel Celeron or Pentium III processor before installing the memory modules.

3.2 Completing Installation

To complete the installation, follow the steps listed below.

1. Make sure the power is OFF.
2. Set the configuration jumpers according to the jumper settings on Chapter 2.
3. Connect the I/O cables and peripherals, i.e. floppy disk, hard disk, monitor, keyboard, power supply and etc. to the CPU board.

   NOTE: *The color of pin one is usually red or blue, while others are gray.*

4. Turn ON the system power.

This Page does not contain any information.

Chapter 4
Hardware Description

This chapter gives a detailed explanation of the hardware features onboard the **SBC85610** all-in-one POS board.

4.1 Microprocessors

The **SBC85610** use Intel Celeron or Pentium III FC-PGA or FC-PGA2 CPU and can be operated under Windows 98/ME/NT/2000/XP and MS-DOS environments.

4.2 BIOS

The system BIOS used in **SBC85610** is Award Plug and Play BIOS. The **SBC85610** contains a single 4Mbit Flash EPROM. For more detailed information, refer to Chapter 7 for a complete description of the BIOS setup utility and the available features accompanying it.

4.3 DMA channel assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Parallel**
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

4.4 Interrupt Controller

The **SBC85610** is a fully PC compatible control board. It consists of 16 ISA interrupt request lines and 4 of the 16 can be either ISA or PCI. The mapping list of the 16 interrupt request lines is shown below;

NMI	Parity check error
IRQ0	System timer output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial port #2
IRQ4	Serial port #1
IRQ5	Parallel port #2
IRQ6	Floppy disk controller
IRQ7	Parallel port #1
IRQ8	Real time clock
IRQ9	USB
IRQ10	Serial port #4
IRQ11	Serial port #3
IRQ12	PS/2 mouse
IRQ13	Math co-processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel

4.5 I/O Port Address Map

The CPU card communicates via I/O ports. It has a total of 1KB port addresses that can be assigned to other devices via I/O expansion cards.

Address	Devices
000-01F	DMA controller #1
020-03F	Interrupt controller #1
040-05F	Timer
060-06F	Keyboard controller
070-07F	Real time clock, NMI
080-09F	DMA page register
0A0-0BF	Interrupt controller #2
0F0	Clear math coprocessor busy signal
0C0-0DF	DMA controller #2
0F1	Reset math coprocessor
0F8-0FF	Math processor
120-121	Watchdog function
220	Digital I/O
1F0-1F8	Fixed disk controller
200-207	Game port (Reserved)
278-27F	Parallel port #2
300-31F	Prototype card
360-36F	Reserved
378-37F	Parallel port #1
3B0-3BF	MDA video card (including LPT1)
3C0-3CF	EGA card
3D0-3DF	CGA card
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port #1 (COM1)
2F8-2FF	Serial port #2 (COM2)
3E8-3EF	Serial port #3 (COM3)
2E8-2EF	Serial port #4 (COM4)

4.6 IDE Interface Connector

The **SBC85610** is built in 2 channels to support 4 IDE drives.
IDE1, IDE2(CN1,CN2): IDE Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	3	Data 7
4	Data 8	5	Data 6	6	Data 9
7	Data 5	8	Data 10	9	Data 4
10	Data 11	11	Data 3	12	Data 12
13	Data 2	14	Data 13	15	Data 1
16	Data 14	17	Data 0	18	Data 15
19	GND	20	N.C.	21	DREQ
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IORDY
28	Pull down	29	DACK#	30	GND
31	IRQ	32	N.C.	33	SA1
34	PDIAG	35	SA0	36	SA2
37	CS1 #	38	CS3 #	39	Active #
40	GND				

4.7 VGA Features

4.7.1 VGA Connector: CN16

The **SBC85610** has two video connectors that support CRT ans LCD VGA individually or simultaneously. **CN16** is a standard 15-pin pin header connector commonly used for the CRT VGA display. **LCD** is a 44 pins box header connector for LCD VGA display. The following tables are the pin assignments for the CRT/VGA and LCD connectors.

CN16: CRT/VGA Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	AGND
7	AGND	8	AGND	9	N/A
10	GND	11	N/A	12	DDC DAT
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

LCD: Flat Panel Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	-12V	2	+12VM	3	GND
4	GND	5	VDDM	6	VDDM
7	ENAVEE	8	GND	9	P0
10	P1	11	P2	12	P3
13	P4	14	P5	15	P6
16	P7	17	P8	18	P9
19	P10	20	P11	21	P12
22	P13	23	P14	24	P15
25	P16	26	P17	27	P18
28	P19	29	P20	30	P21
31	P22	32	P23	33	GND
34	GND	35	SHFCLK	36	FLM
37	M	38	LP	39	GND
40	ENABKL	41	GND	42	SHFCLK#
43	VDDM	44	VDDM		

4.7.2 Flat Panel Connector Pin Description

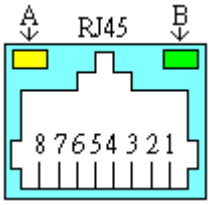
Name	Description
P0~P23	Flat panel data output
FPENABKL	Flat Panel Backlight Enable Output
FPCLK	Flat Panel Clock
FPDISP	Flat Panel Display Enable Output
FPVSYNC	Flat Panel Vertical Sync Output
FPHSYNC	Flat Panel Horizontal Sync Output
+12VM	Controlled +12V power
VDDM	Controlled 3.3V or 5V power selected by JP30

4.8 Ethernet Connector

The RJ-45 connector is used for Ethernet. To connect the **SBC85610** to 10-Base-T or 100-Base-T hub, just plug one end of the cable into the **CN11** and connect the other end (phone jack) of the cable to a 10-Base-T hub or 100-Base-T hub.

CN11: RJ-45 Connector Pin Assignment

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ-1(For 100 base T-Only)
5	RJ-1(For 100 base T-Only)
6	Rx- (Data reception negative)
7	RJ-1(For 100 base T-Only)
8	RJ-1(For 100 base T-Only)
A	Active LED
B	100 LAN LED



4.9 Floppy Disk Controller

The **SBC85610** provides a 34-pin header type connector, **FDD**, supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

FDD: Floppy Disk Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	RWC	3	GND
4	No connector	5	GND	6	No connector
7	GND	8	Index#	9	GND
10	Motor A#	11	GND	12	Drive select B#
13	GND	14	Drive select A#	15	GND
16	Motor B#	17	GND	18	Direction#
19	GND	20	STEP#	21	GND
22	Write data#	23	GND	24	Write gate#
25	GND	26	Track 0 #	27	GND
28	Write protect#	29	GND	30	Read data#
31	GND	32	Side 1 select#	33	GND
34	Disk change#				

4.10 Parallel Port Interface

The **SBC85610** onboard **Lpt1** And **Lpt2** is multi-mode parallel port able to support:

- **Standard mode:** IBM PC/XT, PC/AT and PS/2™ compatible with bi-directional parallel port
- **Enhanced mode:** Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- **High speed mode:** Microsoft and Hewlett Packard extended capabilities port (ECP) IEEE 1284 compliant

The address select of the onboard parallel port in CN15 (378H) and Lpt2 (278h) or disabled is done by BIOS CMOS setup.

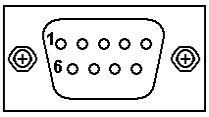
CN15: Parallel Port Connector Pin Assignment

Pin	Description	Pin	Description
1	Strobe #	14	Auto Form Feed #
2	Data 0	15	Error #
3	Data 1	16	Initialize #
4	Data 2	17	Printer Select In #
5	Data 3	18	GND
6	Data 4	19	GND
7	Data 5	20	GND
8	Data 6	21	GND
9	Data 7	22	GND
10	Acknowledge #	23	GND
11	Busy	24	GND
12	Paper Empty #	25	GND
13	Printer Select		

4.11 Serial Port Interface

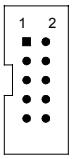
The SBC85610 has six onboard serial ports and have +5V/12V power on pins 1 and 8 or pin 9, depending on jumper selection. COM1 and COM2 are standard DB9 connectors. COM3 and COM4 are combo connectors. The pin assignments are listed below:

COM1	COM2	Description
1	1	Data Carrier Detect (DCD)
6	6	Data Set Ready (DSR)
2	2	Receive Data (RXD)
7	7	Request to Send (RTS)
3	3	Transmit Data (TXD)
8	8	Clear to Send (CTS)
4	4	Data Terminal Ready (DTR)
9	9	Ring Indicator (RI)
5	5	Ground (GND)



COM3-COM4 pin assignments;

COM3	COM4	Description
1	1	Data Carrier Detect (DCD)
2	2	Data Set Ready (DSR)
3	3	Receive Data (RXD)
4	4	Request to Send (RTS)
5	5	Transmit Data (TXD)
6	6	Clear to Send (CTS)
7	7	Data Terminal Ready (DTR)
8	8	Ring Indicator (RI)
9	9	Ground (GND)
10	10	N.C.

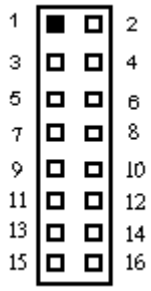


4.12 Digital I/Os

The SBC85610 (**CN14**) has two high drive digital outputs (24V DC, 1 A MAX) and four digital inputs (**TTL level**). You can configure the digital I/O
to control the opening of the cash drawer and to sense the closing of the cash drawer. The following explains how the digital I/O is controlled via software programming and how a 12 V solenoid or relay can be triggered:

CN14: 16 Pin Digital Input/Output connector

Pin	Description
1	O/P D0
2	+5V
3	O/P D1
4	I/P D0
5	O/P D2
6	GND
7	O/P D3
8	I/P D1
9	GND
10	+12V
11	NC
12	NC
13	I/P D3
14	GND
15	I/P D2
16	+12V



4.12.1 Digital I/O Software Programming

The Digital I/O on the **SBC85610** is not an isolated type.

Output	Address	Bit
Out-0	220	0
Out-1	220	1
Out-2	220	2
Out-3	220	3

Example program;

Out 220h, 03h	Out-0, Out-1	Turn On
Out-2, Out-3	Turn Off	
Out 220h, 0Ah	Out-0, Out-2	Turn Off
Out-1, Out-3	Turn On	

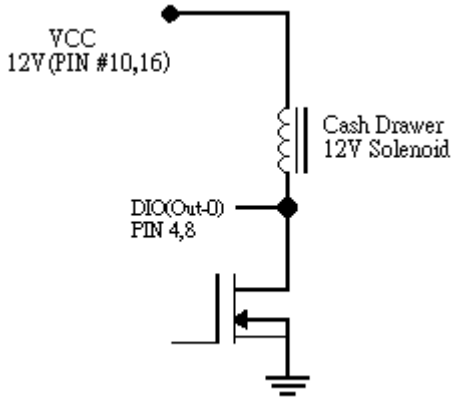
Example program;

If INPUT 220 is
(1011), then INPUT-2 is "0"
If INPUT 220 is (1100), then INPUT-0 &1 are "0"
** The INPUT signal has to be TTL signal

4.12.2 Digital Output Solenoid Wiring Examples

The SBC85610 CN14 digital I/O connector contains a power pin for +5 and +12 V. +5 V is on pin 2 and +12 V is on pin 10,16.

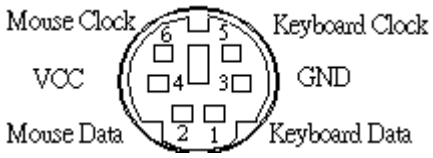
Example:



4.13 Keyboard and PS/2 Mouse Connectors

The **SBC85610** provides a PS/2 keyboard **(CN7)** is a DIN connector. **CN3** is a DIN connector for PS/2 Mouse and PS/2 keyboard connection.

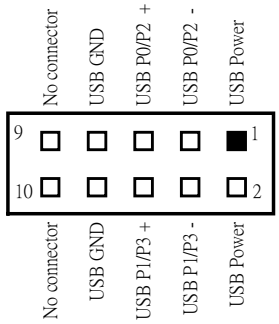
CN3/ CN7	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	VCC
5	Keyboard Clock
6	Mouse Clock



4.14 USB Connector

The Universal Serial Bus (USB) connector on the **SBC85610** is for installation of peripherals supporting the USB interface. **USB** is 10-pin standard double stack USB connector.

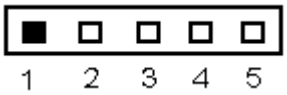
JP3 and JP5



4.15 HDD LED and Power LED Connector

CN4: 5 Pin connector for HDD LED and Power LED communication

Pin	Description
1	HDD LED +
2	HDD LED -
3	Power LED+
4	Reserved
5	Power LED-



4.16 Hardware Reset Connector

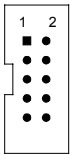
CN12: 2 Pin connector for hardware reset communication

Pin	Description
1	Signal
2	GND

4.17 AC97 Audio Interface Connector

CN10: 10 Pin AC97 interface pin assignments

Pin	Description
1	SDOUT
2	+12V
3	BITCLK
4	+5V
5	SDIN
6	VCC3
7	SYNC
8	A_GND
9	ACRST
10	A_GND



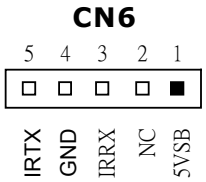
4.18 Power Button Connector

CN9: 2 Pin Power Button connector.

Pin	Description
1	Signal
2	GND

4.19 IrDA Connector

CN6 is a 5-pin IrDA pin-header for wireless communication.



4.20 Temperature Sensor

RT2: CPU Temperature Sensor Connector Pin Assignment

Pin	Description
1	Temperature sensor
2	GND

RT3: System Temperature Sensor Connector Pin Assignment

Pin	Description
1	Temperature sensor
2	GND

4.21 CPU and System Fan Connector

FAN1 is a CPU fan connector. **FAN2** is a system fan connector. All CPUs require a fan for heat dispensing. The fan connector on **SBC85610** provides power to the fan.

FAN1, FAN2: CPU and System Fan Connectors Pin Assignment

Pin	Description
1	Speed sensor
2	+12V
3	GND

This Page does not contain any information.

Chapter 5
Display Drivers

5.1 Introduction

The Apollo PLE133 Graphics Controller is a highly integrated display control device that incorporates a 64-bit 3D/2D graphic engine and video accelerator with advanced DVD video capability. It provides a flexible and high performance solution for graphics and video playback acceleration for various color depth and resolution modes.

In supporting dual live videos, the Apollo PLE133 Graphics controller offers independent dual video windows ready for videoconferencing and with linear scaling capability.

5.2 Features

- High Performance single cycle GUI
- Highly Integrated RAMDAC™ and Triple Clock Synthesizer
- Full Feature High Performance 3D Graphics Engine
- High speed internal AGP Bus Mastering data bus supporting DVD video playback & 3D
- Hardware implementation of motion compensation
- Dual Video Windows for Videoconferencing
- TrueVideo® Processor
- DirectDraw™ and DirectVideo™ Hardware Support
- Versatile Motion Video Capture/Overlay/Playback Support
- Flexible Frame Buffer Memory Interface
- Advanced Mobile Power Management
- CRT Power Management (VESA™ DPMS)
- PC99 Hardware Support

This Page does not contain any information.

Chapter 6
Ethernet

6.1 Introduction

The SBC85610 is equipped with a high performance Plug and Play Ethernet interface which is fully compliant with the IEEE 802.3 standard, and consisting of a RJ-45 connector.

6.2 Features

- 10Mb/s and 100Mb/s operations
- Supports 10Mb/s and 100Mb/s N-Way auto negotiation
- Full duplex capability
- Full compliance with PCI Revision 2.1
- PCI Bus Master data transfers

6.3 Drivers Supported

Bundled with popular software drivers, the SBC85610 Ethernet interface allows great flexibility to work with all major networking operating systems including Novell NetWare v2.x, v3.x, v4.x, Microsoft LAN Manager, Win3.1, Win NT, Win95, IBM LAN Server, SCO UNIX or other ODI, NDIS and Packet drive compliant operating systems.

This Page does not contain any information.

Chapter 7
Award BIOS Utility

The different settings available in the Award BIOS that comes with the **SBC85610** CPU board. Also contained here are instructions on how to set up the BIOS configuration.

7.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Celeron processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

7.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn ON the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system OFF and back ON again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Phoenix – AwardBIOS CMOS Setup Utility	
▸ Standard CMOS Features	▸ Frequency/Voltage Control
▸ Advanced BIOS Features	Load Fail-Safe Defaults
▸ Advanced Chipset Features	Load Optimized Defaults
▸ Integrated Peripherals	Set Supervisor Password
▸ Power Management Setup	Set User Password
▸ PnP/PCI Configurations	Save & Exit Setup
▸ PC Health Status	Exit Without Saving
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type…	

The section below the setup items of the Main Menu displays the control keys for this menu. Another section located at the bottom of the Main Menu, just below the control keys section, displays information on the currently highlighted item in the list.

NOTE: *If you find that your computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.*

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

7.3 Standard CMOS Features

"Standard CMOS Setup" allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Augl 12 2002	Item Help
Time (hh:mm:ss)	2 : 31 : 24	
		Menu Level ▶
▶ IDE Primary Master	[None]	
▶ IDE Primary Slave	[None]	Change the Day, month, Year and Century
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in].	
Drive B	[None]	
Display Type During Post	[CRT]	
Display Type After Post	[CRT]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	65320K	
Total Memory	57344K	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following pages describe each item of this menu.

- **Date**
  The date format is:

Day	the day of week, from Sun to Sat, determined by the BIOS, is read only
Month	the month, Jan (1) through Dec (12)
Date	the date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
Year	the year, from 1994 to 2079

  To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

- **Time**
  The time format is:

Hour	From 00 to 23
Minute	From 00 to 59
Second	From 00 to 59

  To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

- **IDE Primary/Secondary Master/Slave** *Hard Drives*
  The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".
  To enter the specifications for a hard disk drive, you must select first a "Type". There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Types 1 to 45 are predefined. Type "User" is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select "Auto" under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during POST.
  Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press the <Enter> key. The hard disk will not work properly if you enter incorrect information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, the utility will ask you to enter the information on the following table.

CYLS	number of cylinders
HEAD	number of read/write heads
PRECOMP	write precompensation
LANDZ	landing zone
SECTOR	number of sectors
SIZE	Automatically adjust according to the configuration
MODE (for IDE HDD only):	Auto Normal (HD < 528MB) Large (for MS-DOS only) LBA (HD > 528MB and supports Logical Block Addressing)

NOTE: *The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.*

- **Drive A / Drive B**

  These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360K, 5.25 in	5.25 inch PC-type standard drive; 360Kb capacity
1.2M, 5.25 in	5.25 inch AT-type high-density drive; 1.2MB capacity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb capacity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB capacity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB capacity

- **Display Type During post:**

  Default

  LCD Only

  CRT only

  CRT+LCD

  Display Type During post:

  Default

  LCD Only

  CRT only

  CRT+LCD

- **Halt On**

  This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

7.4 Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

			Item Help
	Virus Warning	[Disabled]	
	CPU Internal Cache	[Enabled]	
	External Cache	[Enabled]	Menu Level ►
	CPU L2 Cache ECC Checking	[Enabled]	Allows you to
	Processor Number Feature	[Enabled]	choose the VIRUS
	Quick Power On Self Test	[Enabled]	Warning feature
	First Boot Device	[HDD-0]	for IDE Hard disk
	Second Boot Device	[Floppy]	boot sector
	Third Boot Device	[SCSI]	protection. If this
	Boot Other Device	[Enabled]	function is enable
	Swap Floppy Drive	[Disabled]	and someone
	Boot Up Floppy Seek	[Disabled]	attempts to write
	Boot Up NumLock Status	[On]	data into this area,
	Gate A20 Option	[Normal]	BIOS will show
	Typematic Rate Setting	[Disabled]	a warning
X	Typematic Rate (Chars/Sec)	6	message on
X	Typematic Delay (Msec)	250	screen and alarm
	Security Option	[Setup]	beep
	OS Select for DRAM >64MB	[Non-OS2]	
	Video BIOS Shadow	[Enabled]	
	C8000-CBFFF	[Disabled]	
	CC000-CFFFF	[Disabled]	
	D0000-D3FFF	[Disabled]	
	D4000-D7FFF	[Disabled]	
	D8000-D8FFF	[Disabled]	
	DC000-DFFFF	[Disabled]	
	Small Logo(EPA) Show	[Disabled]	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Virus Warning**
  This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

NOTE: *Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.*

- **CPU Internal Cache / External Cache**
  Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these are ***Enabled***.

- **CPU L2 Cache ECC Checking**
  When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is ***Enabled***.

- **Processor Number Feature**
  When a Pentium® III CPU is installed, the system automatically detects it and displays this item.

- **Quick Power On Self Test**
  When enabled, this field speeds up the Power On Self Test (POST) after the system is turned ON. If it is set to Enabled, BIOS will skip some items.

- **First/Second/Third Boot Device**
  These items allow the selection of the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, and CDROM.

- **Boot Other Device**
  This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is ***Enabled***.

- **Swap Floppy Drive**
  This allows you to determine whether to enable Swap Floppy Drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

- **Boot Up Floppy Seek**
  When enabled, the BIOS seeks for number of track (40 or 80) of the installed floppy drive. 360K type has 40 tracks while 760K, 1.2M and 1.44M have 80 tracks. By default, this field is set to ***Enabled.***

- **Boot Up NumLock Status**
  This activates the NumLock function after powering up the system. By default, the system boots up with ***NumLock*** ON.

7.5 Advanced Chipset Features

This Setup menu controls the configuration of the motherboard chipset.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

			Item Help
	DRAM Clock	[Host CLK]	
	DRAM Timing By SPD	[Enabled]	
X	DRAM Cycle Length	3	Menu Level ►
X	Bank Interleave	Disable	
	Memory Hole	[Disabled]	
	P2C/C2P Concurrency	[Enabled]	Enabled adds a
	Fast R-W Turn Around	[Enabled]	Parity check to the
	System BIOS Cacheable	[Disabled]	boot-up memory
	Video RAM Cacheable	[Disabled]	tests. Select
	Frame Buffer Size	[8M]	Enabled only if the
	AGP Aperture Size	[64MB]	system DRAM
	OnChip USB	[Enabled]	Contains parity
	USB Keyboard Support	[Disabled]	
	OnChip Sound	[Auto]	
	CPU to PCI Write Buffer	[Enabled]	
	PCI Dynamic Bursting	[Enabled]	
	PCI Master 0 WS Write	[Enabled]	
	PCI Delay Transaction	[Enabled]	
	PCI#2 Access #1 Retry	[Disabled]	
	AGP Master 1 WS Write	[Disabled]	
	AGP Master 1 WS Read	[Disabled]	
	Memory Parity/ECC Check	[Disabled]	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **DRAM Clock**
  Set DRAM clock speed.

- **DRAM Timing By SPD**
  This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs.

- **SDRAM Cycle Length**
  When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer. The default setting is ***3***.

- **Memory Hole**
  In order to improve performance, certain space in memory can be reserved for ISA cards. This field allows you to reserve 15MB to 16MB memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to ***Disabled***.

- **System BIOS Cacheable**
  When enabled, access to the system BIOS ROM addressed at F0000H-FFFFFH is cached, provided that the cache controller is ***Disabled***.

- **Video RAM Cacheable**
  When enabled, access to video BIOS addressed at C0000H to C7FFFH is cached, provided that the cache controller is ***Disabled***.

- **OnChip USB**
  This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature. By default, this field is set to ***Enabled***.

- **USB Keyboard Support**
  Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

- **Memory Parity/ECC Check**
  This item *enabled* to detect the memory parity and Error Checking & Correcting.

- **Onchip sound**

  The SBC85610 support AC97 Interface audio.

7.6 Integrated Peripherals

This option sets your hard disk configuration, mode and port.

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

			Item Help
	OnChip IDE Channel0	[Enabled]	
	OnChip IDE Channel1	[Enabled]	
	IDE Prefetch Mode	[Enabled]	Menu Level ►
	Primary Master PIO	[Auto]	
	Primary Slave PIO	[Auto]	
	Secondary Master PIO	[Auto]	
	Secondary Slave PIO	[Auto]	
	Primary Master UDMA	[Auto]	
	Primary Slave UDMA	[Auto]	
	Secondary Master UDMA	[Auto]	
	Secondary Slave UDMA	[Auto]	
	Init Display First	[PCI Slot]	
	IDE HDD Block Mode	[Enabled]	
	Onboard Lan Boot ROM	[Disabled]	
	Onboard FDC Controller	[Enabled]	
	Onboard Serial Port 1	[3F8/IRQ4]	
	Onboard Seiral Port 2	[2F8/IRQ3]	
	UART 2 Mode	[Standard]	
X	IR Function Duplex	Half	
X	TX,RX inverting enable	No, Yes	
	Onboard Parallel Port	[378/IRQ7]	
	Onboard Parallel Mode	[Normal]	
X	ECP Mode Use DMA	[3]	
X	Parallel Port EPP Type	[EPP1.9]	
	Onboard Serial Port 3	[3E8H]	
	Serial Port 3 Use IRQ	[IRQ10]	
	Onboard Serial Port 4	[2E8H]	
	Serial Port 4 Use IRQ	[IRQ11]	
	Onboard Parallel Port 2	[278/IRQ5]	
	Onboard Parallel Mode	[Normal]	
X	ECP Mode Use DMA	[3]	
X	Parallel Port EPP Type	[EPP1.9]	
	Onboard Legacy Audio	[Disabled]	

To be continued…

Phoenix – AwardBIOS CMOS Setup Utility Integrated Peripherals		
X Sound Blaster	Disabled	
X SB I/O Base Address	220H	
X SB IRQ Select	IRQ5	
X SB DMA Select	DMA 1	
X MPU-401	Disabled	
X MPU-401 I/O Address	330-333H	
X Game Port (200-207H)	Enabled	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **On-Chip IDE Channel0/Channel1**
  The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

- **IDE Prefetch Mode**
  The onboard IDE drive interfaces supports IDE prefetching for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support prefetching.

- **Primary/Secondary Master/Slave PIO**
  The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The options available are Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

- **Primary/Secondary Master/Slave UDMA**
  Ultra DMA 66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software support Ultra DMA 33/66/100, select Auto to enable BIOS support. The options available are Auto, Mode 0, Mode 1, and Mode 2.

- **Init Display First**
  This item allows you to decide to active whether PCI Slot or AGP first. The options available are PCI Slot, AGP.

- **IDE HDD Block Mode**
  This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

- **Onboard FDC Controller**
  Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field. The options available are Enabled, Disabled.

- **Onboard Serial Port 1/Port 2**
  Select an address and corresponding interrupt for the first and second serial ports. The options available are 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

- **UART 2 Mode**
  The second serial port offers these infrared interface modes:
  - IrDA
  - ASKIR IrDA-compliant serial infrared port
  - Normal (default value)

  NOTE: *The UART Mode Select will not appear on the menu once you disable the setting of Onboard Serial Port 2.*

  When UART Mode Select is set as ASKIR or IrDA, the options RxD, TxD Active and IR Transmittion delay will appear.

- **IR Function Duplex**
  This item allows you to select the IR half/full duplex funcion.

- **TX,RX inverting enable**
  This item allow you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.

- **Onboard Parallel Port**
  This item allows you to determine access onboard parallel port controller with which I/O address. The options available are 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.

- **Parallel Port Mode**
  Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field. The options available are EPP1.9, ECP, SPP, ECPEPP1.7, EPP1.7.

- **ECP Mode Use DMA**
  Select a DMA channel for the parallel port for use during ECP mode.

- **Parallel Port EPP Type**
  Select EPP port type 1.7 or 1.9.

- **Onboard Serial Port 3**
  This item allows you to determine access onboard serial port 3 with which I/O address. The options available are 3F8H/2F8H/3E8H/2E8H/Disabled.
- **Serial Port 3 Use IRQ**
  Select an corresponding interrupt for the 3rd. serial port. The options available is IRQ11.
- **Onboard Serial Port 4**
  This item allows you to determine access onboard serial port 4 with which I/O address. The options available are 3F8H/2F8H/3E8H/2E8H/Disabled.
- **Serial Port 4 Use IRQ**
  Select an corresponding interrupt for the 4th. serial port. The options available are IRQ9/IRQ11.
- **Onboard Legacy Audio**
  To Enabled/Disabled onboard legacy audio function
- **Sound Blaster**
  To Enabled/Disabled sound blaster function.
- **SB I/O Base Address**
  To select the I/O address for audio function.
- **SB IRQ Select**
  To select the interrupt for audio function
- **SB DMA Select**
  To select the DMA channel for audio function
- **MPU-401**
  To Enabled/Disabled MPU-401.
- **MPU-401 I/O Address**
  To select the I/O address for MPU-401.
- **Game Port (200-207H)**
  To Enabled/Disabled the game port function.

7.7 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

Phoenix – AwardBIOS CMOS Setup Utility Power Management Setup		
ACPI Function	[Disabled]	Item Help
Power Management	[Press Enter]	Menu Level
PM Control by APM	[Yes]	
Video off Option	[Suspend -> off]	
Viode off Method	[V/H SYNC+Blank]	
MODEM Use IRQ	[3]	
Soft-off by PWRBTN	[Instand-off]	
State After Power Failure	[Off]	
Wake Up Events	[Press Enter]	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **ACPI Function**
  This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The options available are Enabled, Disabled.

- **Power Management**
  This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
  - HDD Power Down
  - Doze Mode
  - Suspend Mode

  There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPU'S**. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Define	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

NOTE: *In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.*

- **PM Control by APM**
  When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings.

- **Video Off Method**
  This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This causes the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.
Blank Screen	This option only writes blanks to the video buffer.

- **Modem Use IRQ**
  This field names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity on the selected IRQ always awakens the system. The available choices are 3, 4, 5, 7, 9, 10, 11, and NA. By default, the IRQ is set to ***3***.

- **Soft-off by PWRBTN**
  This only works with systems using an ATX power supply. It also allows tser to define the type of soft power OFF sequence the system will follow.

Instant-Off (default)	This option follows the conventional manner systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF.
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

- **Wake Up Events**
  An input signal on the network 2 awakens the system from a soft-off state.

7.8 PnP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

Phoenix – AwardBIOS CMOS Setup Utility PnP/PCI Configurations		
PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	Menu Level ►
Resources Controlled By	[Manual]	
► IRQ Resources	[Press Enter]	Select Yes if you are using a Plug and play capable operating system select No if you need the BIOS to configure non-boot devices
► DMA Resources	[Press Enter]	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **PNP OS Installed**
  This item allows you to determine install PnP OS or not. The options available are Yes and No.

- **Reset Configuration Data**
  Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The options available are Enabled and Disabled.

- **Resources Controlled By**
  The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. The options available are Auto and Manual.

- **IRQ Resources**
  When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

  1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).
  2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

  The default value is *"PCI/ISA PnP"*.

- **DMA Resources**
  When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

  1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel.
  2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

  The default value is *"PCI/ISA PnP"*.

- **PCI/VGA Palette Snoop**
  Some non-standard VGA display cards may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

- **Assign IRQ For USB/VGA**
  Enable/Disable to assign IRQ for USB/VGA.

7.9 PC Health Status

This PC Health Status option displays information such as CPU and motherboard Temperature,fan speeds and core voltages

Phoenix – AwardBIOS CMOS Setup Utility PC Health Status	
Current CPU Temp	Item Help
Current System Temp	
Current CPUFAN1 Speed	Menu Level ▶
Current CPUFAN2 Speed	
Vcore	
2.5V	
3.3V	
5V	
12V	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

- **Current CPU/System Temperature**
- These read-only fields reflect the functions of the hardware thermal sensor that monitors the CPU and system temperatures to ensure the system is stable.
- **Current CPUFAN1/SYSTEM FAN2 Speed**
  These optional and read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.

7.10 Frequency/Voltage Control

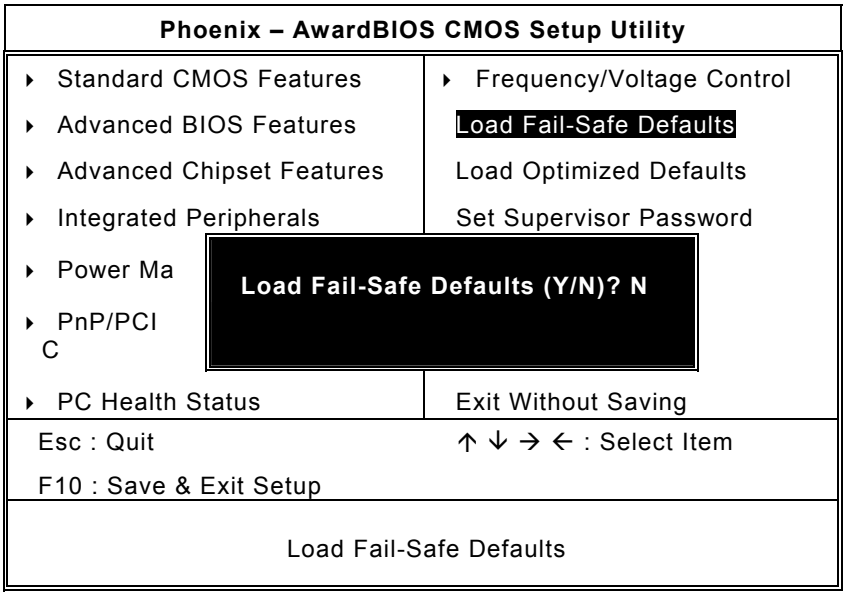
Phoenix – AwardBIOS CMOS Setup Utility Frequency/Voltage Control		
Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Host/PCI Clock	[Default]	Menu Level ►
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **Auto Detect DIMM/PCI Clk**
  This item automatically detects the clock speeds of the system memory installed as well as the PCI interface. The options available are Enabled and Disabled. The default setting is ***Enabled***.

- **Speed Spectrum**
  This item directly relates to the EMI performance of the whole system. When enabled, all system clocks run at slower speeds thereby decreasing the electromagnetic interference to the surrounding environment. Disabling this item improves the system performance but simultaneously increase the EMI. The default setting is ***Disabled***.

7.11 Load Fail Safe Defaults

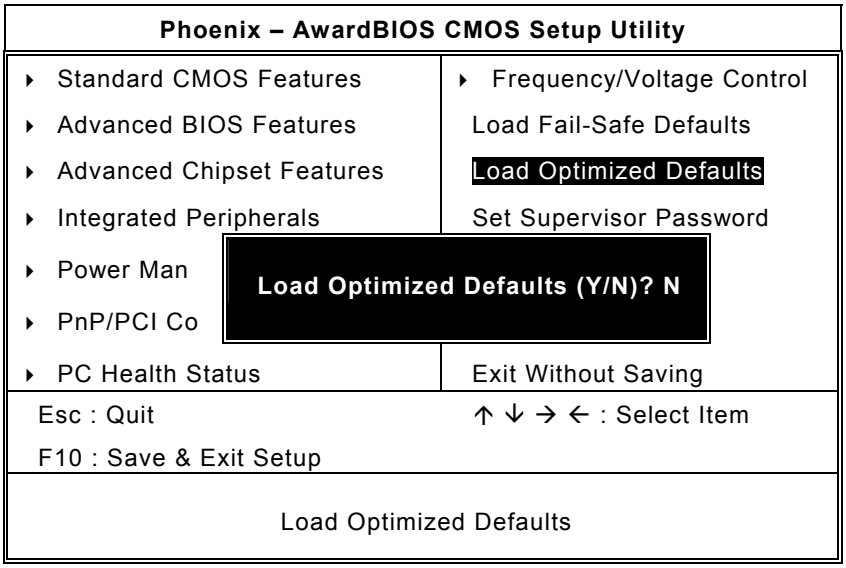
This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.



To load BIOS defaults value to CMOS SRAM, enter "Y". If not, enter "N".

7.12 Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

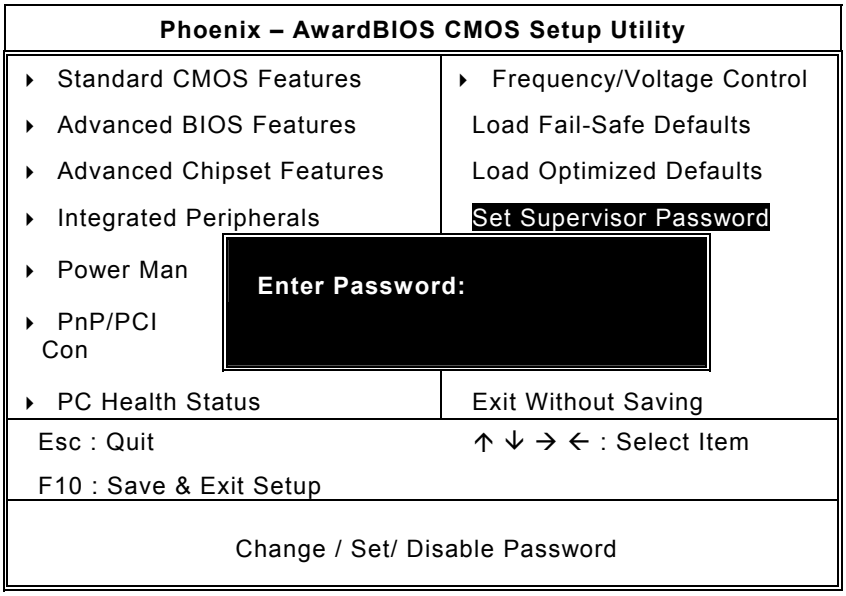


To load SETUP defaults value to CMOS SRAM, enter "Y". If not, enter "N".

7.13 Set Supervisor / User Password

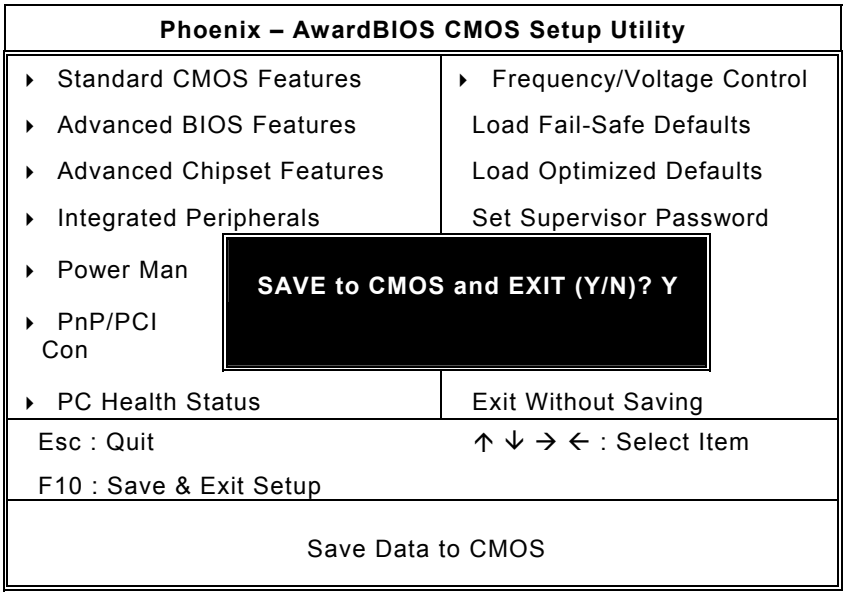
These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.



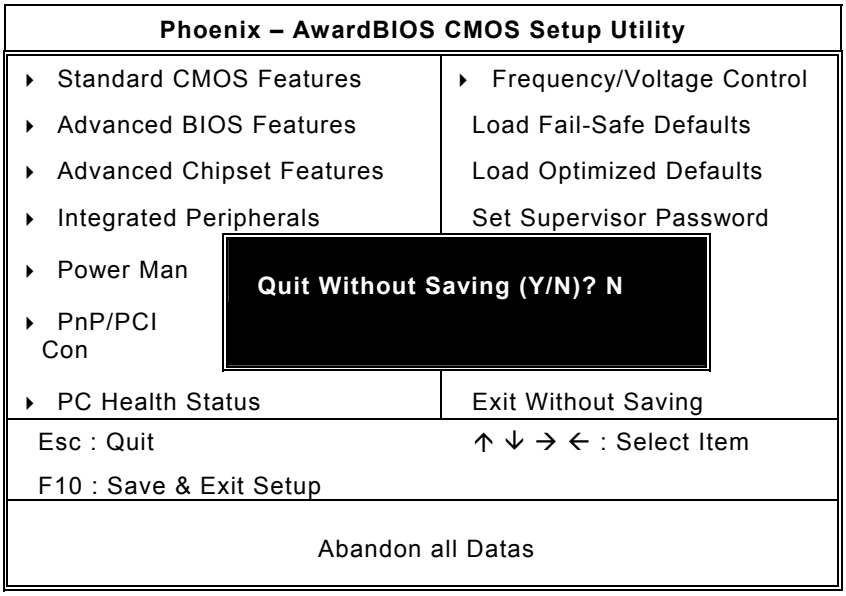
7.14 Save & Exit Setup

This allows you to determine whether or not to accept the modifications. Typing "Y" quits the setup utility and saves all changes into the CMOS memory. Typing "N" brigs you back to Setup utility.



7.15 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.



This Page does not contain any information.

Appendix A
Watchdog Timer

Using the Watchdog Function

The **SBC85610** CPU card uses version 2.0 of the watchdog timer. This onboard WDT generates either a system reset or non-maskable interrupt (NMI), depending on the settings made on jumper **JP13** of **SBC85610**. Follow the steps below to enable and program the watchdog function of **SBC85610**.

Start

↓

Un-Lock WDT	:	**OUT 120H 0AH ; enter WDT function** **OUT 120H 0BH ; enable WDT function**

↓

Set multiple (1~4)	:	**OUT 120 0NH ; N=1,2,3 or 4**

↓

Set base timer (0~F)	:	**OUT 121 0MH ; M=0,1,2,...F**

↓

WDT counting

↓

re-set timer	:	**OUT 121 0MH ; M=0,1,2,...F**

↓

IF No re-set timer	:	**WDT time-out, generate RESET or NMI**

↓

IF to disable WDT	:	**OUT 120 00H ; Can be disable at any time**

M	N			
	1	2	3	4
0	0.5 sec.	5 secs.	50 secs.	100 secs.
1	1 sec.	10 secs.	100 secs.	200 secs.
2	1.5 secs.	15 secs.	150 secs.	300 secs.
3	2 secs.	20 secs.	200 secs.	400 secs.
4	2.5 secs.	25 secs.	250 secs.	500 secs.
5	3 secs.	30 secs.	300 secs.	600 secs.
6	3.5 secs.	35 secs.	350 secs.	700 secs.
7	4 secs.	40 secs.	400 secs.	800 secs.
8	4.5 secs.	45 secs.	450 secs.	900 secs.
9	5 secs.	50 secs.	500 secs.	1000 secs.
A	5.5 secs.	55 secs.	550 secs.	1100 secs.
B	6 secs.	60 secs.	600 secs.	1200 secs.
C	6.5 secs.	65 secs.	650 secs.	1300 secs.
D	7 secs.	70 secs.	700 secs.	1400 secs.
E	7.5 secs.	75 secs.	750 secs.	1500 secs.
F	8 secs.	80 secs.	800 secs.	1600 secs.